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**In the United States Patent and Trademark Office**

Applicants: Michael J. Faulks et al. Docket No.: 18,098  
Serial No.: 10/719,639 T.C./A.U.: 3761  
Confirmation No.: 3447 Examiner: Hand, Melanie Jo  
Filed: November 21, 2003 Date: December 9, 2008  
For: REDUCED-NOISE COMPOSITE MATERIALS AND DISPOSABLE PERSONAL CARE DEVICES EMPLOYING SAME

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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**Brief on Appeal (15 pages)**

**16 total pages, including this page**

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## In the United States Patent and Trademark Office

Appellants:	Michael J. Faulks et al.	Docket No.:	18,098
Serial No.:	10/719,639	Group:	3761
Confirmation No:	3447	Examiner:	Hand, Melanie Jo
Filed:	November 21, 2003	Date:	December 9, 2008
For:	REDUCED-NOISE COMPOSITE MATERIALS AND DISPOSABLE PERSONAL CARE DEVICES EMPLOYING SAME		

### **Brief on Appeal to the Board of Patent Appeals and Interferences**

Mail Stop Appeal Brief - Patents  
Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. 41.37, Appellants respectfully submit this Brief in support of their Appeal of Examiner Hand's **Final Rejection** of claims 10-18, 21-30, and 32-36 which was mailed on July 14, 2008.

On October 10, 2008, Appellants, pursuant to 37 C.F.R. 41.31, mailed a timely Notice of Appeal. Thus, the time period for filing this Brief ends on December 10, 2008.

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#### **Real Party in Interest**

The real party in interest is Kimberly-Clark Worldwide, Inc., the assignee of record.

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#### **Related Appeals and Interferences**

There are no known related appeals and/or interferences.

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#### **Status of Claims**

Claims 10-18, 21-30, and 32-36 remain in the application with claims 10-18, 21-30, and 32-36 being finally rejected. Claims 1-9 have been withdrawn and claims 19, 20, and 31 have been canceled. The appealed claims include 10-18, 21-30, and 32-36 and appear in the CLAIMS APPENDIX of this Brief.

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**Status of Amendments**

No amendments have been filed since the Final Office Action mailed July 14, 2008.

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**Summary of Claimed Subject Matter**

The present invention concerns the use of noise-reducing coating materials in disposable personal care devices to reduce the noise caused by movements of the wearer or user.

Many disposable personal care products incorporate thermoplastic, polymeric films to, for instance, provide liquid containment. For example, disposable absorbent articles such as infant diapers, adult incontinence products, disposable training pants, feminine care pads and panties, and the like are intended to collect and completely retain liquid bodily discharges. Specification, page 1, lines 10-14.

Polymeric films are well known in the art as ideal for such applications, because they are easily processable and low enough in cost so as to make the product affordably disposable. Examples of polymeric films suitable for such applications include polyethylene and polypropylene. For example, disposable absorbent articles such as adult incontinence products, infant diapers, and disposable training pants frequently employ a liquid impervious backsheet made of polyethylene or polypropylene. Id. at lines 19-25.

However, a major disadvantage of most polymeric films used in disposable personal care devices is that they produce excessive noise under use conditions; that is, "rattling" or "rustling" sounds caused by the wearer's body movements may reveal to others that a disposable personal care article is being worn. Users of certain disposable absorbent articles generally are embarrassed to have to wear such articles. For example, young children several years of age who are not fully toilet trained or who suffer from enuresis (e.g., bedwetting) often must continue to wear diapers, training pants, or disposable underpants. In another example, incontinent adults use disposable absorbent articles designed for adult incontinence. Both groups of users generally are unenthusiastic about advertising the fact that they require the protection of a disposable absorbent article. As a result, the "rattling" or "rustling" sounds associated with disposable absorbent garments employing polymeric backsheets can be greatly embarrassing to the wearer. Such users desire the product to be as discreet as possible. Id. at page 1, line 26 to page 2, line 10.

Various special materials and technologies have been proposed to reduce the level of noise attributable to specific materials. Such special materials and technologies, however, have not been suitable for or compatible with easily processable, low-cost, and mass-produced disposable personal

personal care devices. In response to that need, the present inventors have developed new reduced-noise composite materials suitable for use in disposable personal care articles. Id. at page 2, line 11-18.

In one embodiment, the present invention relates to a reduced-noise backsheet comprising a substrate layer which defines a first surface having a surface area and a target region, and a noise-reducing layer which substantially completely coats said target region, said noise-reducing layer having a basis weight of at least about three grams per square meter. Id. at page 3, lines 17-23.

In a related embodiment, the present invention relates to a disposable absorbent article comprising a body-side liner and a garment-side outer cover. Id. at lines 24-27. The outer cover comprises a liquid-impermeable substrate layer comprised of a thermoplastic, polymeric material and which defines a first surface having a surface area and a target area; the outer cover further includes a noise-reducing layer which substantially completely coats said target region, said noise-reducing layer having a basis weight of at least about three grams per square meter. Id. at page 3, line 27 to page 4, line 1. The article further comprises an absorbent assembly disposed between the body-side liner and the garment-side outer cover. Id. at page 4, lines 1-3.

In another embodiment, the present invention relates to a disposable absorbent article comprising a body-side liner and a garment-side outer cover. Id. at lines page 4, lines 4-6. The outer cover comprises a liquid-impermeable substrate layer comprised of a thermoplastic, polymeric material and which defines a first surface having a surface area, and the outer cover also comprises a noise-reducing layer which substantially completely coats a target region of the first surface. Id. at lines 6-8, and original claims 32-33. The article also comprises an absorbent assembly disposed between the body-side liner and the garment-side outer cover. Id. at lines 8-9. The article has a Noise Level of less than 30.0 dB at 2 kHz and less than 28.0 dB at 4 kHz. Id. at page 2, line 31 to page 3, line 11; page 4, lines 10-11. The Noise Level test protocol, and experimental results, are presented in the Specification at page 23, line 1 to page 36, line 4, and in FIGS. 7-11.

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**Grounds of Rejection To Be Reviewed on Appeal**

**Ground 1:** Whether or not claims 10-18, 21-30, and 32-36 are unpatentable under 35 U.S.C. §103(a) in view of Hwang et al. (U.S. Patent No. 4,902,553).

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**Argument**

In an Office Action mailed July 14, 2008, the Examiner finally rejected claims 10-18, 21-30, and 32-36 under 35 U.S.C. §103(a) as allegedly being obvious in view of U.S. Patent No. 4,902,553 filed Nov. 18, 1988 and issued Feb. 20, 1990 to Hwang et al. ("Hwang"). Appellants believe that the rejections are improper for the reasons set forth below. In sum, while Hwang does disclose an approach to reducing the "rattle" or "rustling" of plastic diaper backsheets, it is an entirely different approach than that taken by Appellants.

Hwang teaches a microporous sheet material used in disposable articles. Hwang, col. 3, lines 25-31. The pores are partially filled with a "rattle-reducing additive material capable of partially dissolving in the polymeric matrix." Id. at col. 3, lines 31-35. The rattle-free properties of the articles of Hwang are obtained by the inclusion of the rattle-reducing additive material in the microporous sheet material component. Id. at col. 4, lines 8-11. The rattle-reducing additive is preblended with the thermoplastic and thermally formed into the film. Id. at col. 4, lines 16-17. Upon cooling, the additive (such as mineral oil) partly phase separates and fills in the pores of the microporous polymeric matrix, delivering the desired reduction in plastic "rattle." Id. at col. 3, lines 31-35 and col. 4, lines 45-56.

With respect to independent claims 10, 21, and 32, the Examiner takes the position that the rattle-reducing additive of Hwang is "partially soluble in the polymeric matrix and phase-separates at room temperature from the polymeric matrix to *form a separate layer which substantially completely coats said target region.*" 2008-Jul-14 Final Office Action, pp. 3-4 (italics added). The italicized portion of the preceding passage appears nowhere in the patent. The Examiner does not cite to any portion of the patent. The Examiner does not refer to any law of chemistry that would support this conclusion. As support, the Examiner simply states that "[s]ince the two compositions components [sic] phase-separate yet form a film nonetheless, the rattle reducing additive necessarily has bulk and defines a surface, i.e. it forms a layer." Id. at pp. 2-3.

Hwang focuses on premixing the rattle-reducing additive (such as a saturated aliphatic compound) with a polymeric matrix. Hwang repeatedly refers to the additive being mixed *in* the polymeric matrix, as opposed to *on* the matrix – that is, mixed throughout, as opposed to surface coated. See, e.g., col. 4, lines 8-20 and lines 45-51; col. 6, lines 3-6; col. 9, lines 16-40; claim 1,

lines 48-50; claim 11, lines 23-25; and claim 17, lines 48-53. It is this uniform distribution of the additive through the pores of the matrix that provides the desirable permeability, low rattle, and reduced coefficient of friction properties of Hwang. Although the additive phase separates upon cooling, it does not and would not "form a separate layer which substantially completely coats said target region." In sum, not only does Hwang not teach the conclusion of the Examiner quoted and italicized above, but Hwang's teachings indicate that such a result would not deliver the benefits contemplated by Hwang. Instead, Hwang teaches a rattle-reducing additive that is distributed throughout the microporous matrix by filling in the pores.

With respect to Appellants' claim limitation that the noise-reducing layer has "a basis weight of at least about three grams per square meter," the Examiner conclusorily states that "it would be obvious to one of ordinary skill in the art to modify the article of Hwang such that the noise reducing layer has a basis weight of at least about three grams per square meter with a reasonable expectation of success to yield a rattle-reducing material. 2008-Jul-14 Final Office Action, page 4. Even if the rattle-reducing additive material of Hwang formed a separate layer upon cooling (which it does not), there is no teaching or suggestion that it would be at least three grams per square meter. Instead, Hwang talks in terms of weight percent, and notes that the relative weight percent of the additive should be controlled within a specific range. See Hwang at col. 6, lines 3-15.

The Examiner's next position is that the additive and polymeric matrix materials are actually identical. Hwang lists a variety of suitable examples of materials for both the rattle-reducing additive as well as the polymeric matrix.

Suitable rattle-reducing additive materials are saturated compounds such as mineral oil, glycerin, petroleum jelly, low molecular weight polyethylene, polyethylene oxide, polypropylene oxide, polytetramethylene oxide, soft carbowax and the like and mixtures thereof. Mineral oil is preferred because of its relatively low cost and excellent properties.

The polymeric matrix may be a crystallizable thermoplastic polymer of a polyolefinic nature such as high density polyethylene, linear low density polyethylene, polypropylene, polybutylene, poly-4-methyl pentene, a block copolymer or copolymers of ethylene and propylene, or other modified polyolefins. These resins can be used either singularly or in a mixture. It is preferred to use polypropylene, either in its pure form or a modified polypropylene, with a molecular weight in the range of 50,000 to 500,000 with a melt flow

index ranging from 0.1 to 8. If the molecular weight is lower than 50,000, the film will have poor stretchability resulting in orientation problems and a resulting poor vapor permeability. It is advantageous to use modified polypropylenes with a high melt strength for high speed film production.

The preferred **rattle-reducing additive** comprises an ambient temperature liquid saturated aliphatic compound which acts both as a pore forming and rattle-reducing additive. It is desirable to have part of the aliphatic compound dissolved in the polymeric matrix to plasticize the polymer and give the resulting films good hand and reduced rattle characteristics. It is desirable that the aliphatic compound "match" the thermoplastic polymer used in the resin so that the two components are miscible in the molten state but partly phase separate when cooled to below the crystallization temperature of the thermoplastic polymer. In the present invention, it is preferred to select a resin comprising polypropylene and a hydrocarbon such as mineral oil.

Hwang, col. 4, lines 22-58 (italics added).

The Examiner's position is as follows: the Examiner interprets "match" as used in Hwang "as meaning that the two compounds are identical." The Examiner then states that since "Hwang teaches polybutylene as the polymer[,] the rattle-reducing additive is also polybutylene." 2008-Jul-14 Final Office Action, page 4. The Examiner's interpretation is incorrect. "Match" as used in Hwang means that the rattle-reducing additive and the polymeric material are *compatible* from the standpoint of *mixing* well at high temperatures. Indeed, in giving meaning to the word "match," Hwang notes that "the two components are miscible in the molten state but partly phase separate when cooled to below the crystallization temperature of the thermoplastic polymer." Col. 4, lines 54-56. The examples Hwang provides of the additive material are liquid or semi-solid at room temperature, and of relatively low density. Col. 4, lines 22-28. In contrast, the examples Hwang provides of the polymer base material are crystalline polymers, having very high molecular weights, higher melting points, and generally solid at room temperature. Col. 4, lines 29-39. Furthermore, Hwang teaches that the additive and base polymer "phase separate" when cooled. If the components were "identical" (under the Examiner's interpretation of "match"), no such phase separate would occur.

These groups of compounds (the rattle-reducing additive compounds on the one hand, and the base polymer compounds on the other hand) are *significantly* different; "match" certainly

cannot be interpreted to mean that they are "identical." Instead, "match" means just what Hwang says it means – miscible in the molten state. Accordingly, Hwang does not teach "polybutylene" as being suitable for the rattle-reducing additive.

Finally, with respect to independent claim 32, which sets forth that the "article has a Noise Level of less than 30.0 dB at 2 kHz and less than 28.0 dB at 4 kHz," the Examiner summarily states that "it would be obvious to one of ordinary skill in the art to modify the article of Hwang such that the article has a Noise Level of less than 30.0 db at 2kHz and less than 28.0 at 4 kHz with a reasonable expectation of success to yield a rattle-reducing material." 2008-Jul-14 Final Office Action, page 10. First, while Hwang does measure the noise in decibels created by films and diapers when they are manipulated, Hwang does not indicate what frequencies are being measured. Furthermore, even if Hwang is measuring either 2 Hz or 4 Hz frequencies (as claimed by Appellants), none of the experimental examples offered by Hwang comes close to the ranges claimed by Appellants. Indeed, even the base background noise of Hwang's test chamber is 43 dB or 33 dB (depending on the example; see col. 7, line 56 to col. 8, line 4; Examples 1 – 5), so one of skill in the art would have no way of knowing whether Hwang's films could possibly meet the specific noise level limitations (at two specific stated frequencies) claimed by Appellants.

For at least the reasons articulated above, the Examiner's rejection of all of the pending claims is improper and should be withdrawn.

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**Conclusion**

For the reasons stated above, it is Appellants' position that the Examiner's rejection of the claims has been shown to be untenable and should be **reversed** by the Board.

Please charge the \$540.00 fee (fee code 1402), pursuant to 37 C.F.R. 41.20(b)(2), for filing this Appeal Brief to Kimberly-Clark Worldwide, Inc. deposit account number 11-0875. Any additional prosecutorial fees which are due may also be charged to deposit account number 11-0875.

The undersigned may be reached at: (920) 721-7844.

Respectfully submitted,

MICHAEL J. FAULKS ET AL.

By: 

H. Michael Kubicki

Registration No.: 51,235.

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**Claims Appendix**

The claims on appeal are:

10. A reduced-noise backsheet comprising:
  - a substrate layer which defines a first surface having a surface area and a target region; and
  - a noise-reducing layer which substantially completely coats said target region, said noise-reducing layer having a basis weight of at least about three grams per square meter.
11. The reduced-noise backsheet of Claim 10 wherein said target region is at least about 75% of said surface area of said first surface.
12. The reduced-noise backsheet of Claim 10 wherein said basis weight is at least about four grams per square meter.
13. The reduced-noise backsheet of Claim 10 wherein said noise-reducing layer consists essentially of at least one of polyisoprene, polybutadiene, polyisobutylene, polyurethanes, silicone rubber, atactic polypropylene, and a synthetic block co-polymer.
14. The reduced-noise backsheet of Claim 10 wherein said noise-reducing layer consists essentially of at least one of styrene block co-polymers and olefin-based adhesives.
15. The reduced-noise backsheet of Claim 10 wherein said substrate layer comprises a thermoplastic, polymeric film.
16. The reduced-noise backsheet of Claim 15 wherein said substrate layer is non-elastomeric.
17. The reduced-noise backsheet of Claim 15 further comprising a nonwoven layer adhered to said substrate layer.

18. The reduced-noise backsheet of Claim 15 wherein said substrate layer comprises at least one of polyethylene and polypropylene.
21. A disposable absorbent article comprising:
  - a body-side liner;
  - a garment-side outer cover, said outer cover comprising:
    - a liquid-impermeable substrate layer comprised of a thermoplastic, polymeric material and which defines a first surface having a surface area and a target area; and
    - a noise-reducing layer which substantially completely coats said target region, said noise-reducing layer having a basis weight of at least about three grams per square meter; and
    - an absorbent assembly disposed between said body-side liner and said garment-side outer cover.
22. The disposable absorbent article of claim 21 wherein said target region has an area which is at least about 50% of said surface area of said first surface.
23. The disposable absorbent article of claim 21 wherein said target region has an area which is at least about 75% of said surface area of said first surface.
24. The disposable absorbent article of claim 21 wherein said basis weight is at least about four grams per square meter.
25. The disposable absorbent article of claim 21 wherein said noise-reducing layer consists essentially of at least one of polyisoprene, polybutadiene, polyisobutylene, polyurethanes, silicone rubber, atactic polypropylene, and a synthetic block co-polymer.
26. The disposable absorbent article of claim 21 wherein said noise-reducing layer consists essentially of at least one of styrene block co-polymers and olefin-based adhesives.
27. The disposable absorbent article of claim 21 wherein said substrate layer comprises a thermoplastic, polymeric film.

28. The disposable absorbent article of claim 27 wherein said substrate layer is non-elastomeric.
29. The disposable absorbent article of claim 27 further comprising a nonwoven layer.
30. The disposable absorbent article of claim 27 wherein said substrate layer comprises at least one of polyethylene and polypropylene.
32. A disposable absorbent article comprising:
  - a body-side liner;
  - a garment-side outer cover, said outer cover comprising a liquid-impermeable substrate layer comprised of a thermoplastic, polymeric material and which defines a first surface having a surface area; a noise-reducing layer which substantially completely coats a target region of said first surface; and
  - an absorbent assembly disposed between said body-side liner and said garment-side outer cover,

wherein the article has a Noise Level of less than 30.0 dB at 2 kHz and less than 28.0 dB at 4 kHz.
33. The disposable absorbent article of claim 32, wherein the target region has an area which is at least about 50% of said surface area;  
said noise-reducing layer having a basis weight of at least about three grams per square meter.
34. The disposable absorbent article of claim 33 wherein said noise-reducing layer consists essentially of at least one of polyisoprene, polybutadiene, polyisobutylene, polyurethanes, silicone rubber, atactic polypropylene, and a synthetic block co-polymer.
35. The disposable absorbent article of claim 32 wherein said substrate layer comprises a non-elastomeric thermoplastic, polymeric material.

36. The disposable absorbent article of claim 35 further comprising a nonwoven, layer adhered to said substrate layer.

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**Evidence Appendix**

There is no evidence appendix.

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**Related Proceedings Appendix**

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There are no known related appeals and/or interferences.

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